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## SMALLPOX AND VACCINATION IN THE PHILIPPINE ISLANDS.

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At probably no time in the world's history has the efficiency of vaccination as a preventive for smallpox been so conclusively and effectively demonstrated as in the Philippine Islands since American occupation.

The evidence of its value is uncontested.

During Spanish times it was necessary each year during the dry season to erect in Manila a large temporary hospital to which the many hundreds of victims of smallpox could be taken. The great majority of them died.

During the past five years not one person has died in Manila from smallpox who had been successfully vaccinated during the five previous years; nor has anyone died of smallpox in Manila since June, 1909.

Since 1907, when the systematic vaccination was completed of the six Provinces near Manila, which have an approximate population of 1,000,000, and which from time immemorial had an annual average mortality from smallpox of at least 6,000 persons, not one person has died of smallpox who had been successfully vaccinated, and only a few scattering cases have occurred. During the past two years some deaths have been reported, but careful investigation shows that not one death took place in a vaccinated person.

In May, 1904, the U. S. Army transport *Liscum* left Manila with 26 cabin passengers, 170 steerage passengers, 16 officers, and 80 members of crew, or a total of 292 souls on board. During the first week smallpox broke out aboard the vessel in an unvaccinated child in the steerage. An examination of the personnel on board showed that 3 members had never been vaccinated. Within a period of two weeks these unvaccinated persons were stricken with the disease and not one of the 289 remaining persons contracted it.

During October, 1910, information was received that in the remote town of Baler, with a population of 2,417, situated on the east coast of Luzon, smallpox had broken out among the unvaccinated children. There were 100 cases and 27 people had already died. An

average of 35 new cases was occurring daily. Through the efforts of the Hon. Manuel Quezon, Delegate from the Philippine Islands to the Congress of the United States, the people were induced to submit to vaccination. The number of new infections decreased rapidly, and 14 days after the last person in that town had been vaccinated, about October 20, no further cases of smallpox occurred.

An accurate estimate of the prevalence of smallpox in the Philippine Islands under the Spanish régime is not available, but judging from the partial reports received from the provinces during the first few years of American occupation the death rate must have been appallingly heavy.

The policy of persistent systematic vaccination, inaugurated 12 years ago by the American sanitary authorities, has been attended with excellent results.

In the larger cities and easily accessible localities the disease has become mild, relatively infrequent, and death is rare. Severe outbreaks of variola are occasionally reported in some of the remote communities. In these instances, however, it has invariably been found that vaccination has been incomplete. Either it has been impossible to place a potent virus in the field for vaccination, or the people, through ignorance, superstition, or willful neglect, have failed to avail themselves of the proven prophylactic advantages of the measure.

In order that the efficiency of protective inoculation may be illustrated, a few of the many successes which have attended the efforts of the bureau of health for the Philippines are here cited.

Through an unfortunate combination of circumstances vaccination was suspended during a period of nine years in Bagac, an isolated barrio of 2,000 inhabitants in the Province of Bataan. Being situated on the monsoon-swept China seacoast, the town is accessible by sea only during short seasons. To reach the town overland requires strenuous travel over an exceedingly wretched trail. From 1896 to 1901, when the country was in the throes of war and rebellion, it was impracticable to carry on the work of vaccination, and Bagac was necessarily neglected. Later protective inoculation was still further delayed by the inability of the provincial physician, through physical infirmity, to reach the town. In 1905 there was a widespread epidemic of smallpox in Bagac. The American physician who investigated the outbreak found that there were one or more cases in every house. Especially noteworthy was the fact that a few persons who had been vaccinated during the Spanish régime remained free from the disease. Within two weeks after the completion of thorough vaccination new cases ceased to appear and the town remained free from variola thereafter.

That there is a decided difference between the results obtained by desultory vaccination and those obtained from the institution of thorough measures became apparent in the last epidemic in the city of Iloilo. In July, 1909, there occurred 21 deaths from smallpox in that city. As the disease had always existed to a considerable degree, it was difficult to persuade the local sanitary officials to bestir themselves, but after discussing the subject they consented to undertake a complete campaign of vaccination. In August there were 12 deaths, in September 8, and in October 1. Since that time but one mild case

of varioloid has been recorded in a city which previously had rarely, if ever, been free from variola.

In Pampanga Province there were 278 deaths from smallpox in 1904 and 168 in 1905. After vaccination was begun with some degree of regularity the decrease in the ravages of the disease became manifest: 1906, 35 deaths; 1907, 14 deaths; later, to date, no deaths.

During the systematic vaccination of the Province of Albay, with a population of 234,000, bitter opposition was encountered in the towns of Tabaco and Malinao. Many people remained away from the towns until after the departure of the vaccinators. The following year 40 deaths from variola occurred in these two localities, the only cases in the entire Province. The authorities suppressed the disease by enforced vaccination of those who had previously escaped and since then there has been no smallpox in the Province.

In January, 1910, the district health officer of Ilocos Sur was summoned to the town of San Esteban to aid in combating an epidemic of smallpox. The work of thorough vaccination began on January 26, after the great majority of cases had developed. The beneficial results were immediately apparent as shown by the following enumeration of cases:

1910	Cases.	Deaths.
January.....	126	29
February.....	75	22
March.....	10	6
April.....	1	1

Subsequently there were no cases. Of the 58 persons who succumbed to smallpox, not one had a vaccination scar, nor did any of the 154 survivors have scars denoting recent successful vaccination. The instance is particularly noteworthy because attention was directed solely to vaccination. The epidemic occurred in the dry season, climatic and sanitary conditions remaining the same.

That portion of the Province of La Union lying north of the town of San Juan was systematically vaccinated in 1905, with the resulting disappearance of smallpox. In the unvaccinated southern part of the province there were yearly outbreaks even while the northern portion remained free from the disease. Following systematic vaccination, variola was also eradicated from the southern portion, a phenomenon commented upon by the impressionable people with amazement.

After a strenuous campaign of vaccination, as a result of which smallpox was practically eradicated from the Province of Ambos Camarines, the authorities sought to eliminate every possible opportunity for the reappearance of the disease. It was decided that the principal danger was incurred by permitting the 15,000 children who were born annually to remain unprotected. Consequently, four experienced men were employed to make continuous trips through the province, arriving at each locality at least twice a year. These men obtain the birth records and do not leave a community until every infant has been successfully vaccinated.

Attention is also directed to transients. Every newcomer must produce a certificate of recent successful vaccination or submit to

the operation. That the efforts of the officials in the Ambos Camarines have been wisely directed is evinced in the following statistics:

	Deaths.
Third quarter, 1906 .....	208
Fourth quarter, 1906.....	80
First quarter, 1907.....	8
Later to date, no deaths.	

Prior to 1905, between 3,000 and 4,000 deaths from smallpox were reported each year in the Province of Cebu. In 1905 and 1906 the systematic vaccination of the 650,000 inhabitants was undertaken. In 1907 there were only 94 deaths and in 1908, 84 deaths from the disease.

As smallpox was apparently on the wane, vaccination was suspended for two years. In the meanwhile there was a decided increase in the number of unprotected people, due to births and immigration from neighboring islands. During 1909 there was a recrudescence of variola, in which 736 persons lost their lives. Investigation proved that over 90 per cent of all the cases were among unvaccinated children, that no cases were reported among persons recently successfully vaccinated, and that the small number of adults attacked were nearly all unvaccinated. The Province has again been thoroughly vaccinated.

In July, 1908, Pangasinan Province was swept by an epidemic of cholera and for a time vaccination was entirely suspended, the vaccinators being made sanitary inspectors and employed in combatting the new scourge.

In October, 1908, the cholera having subsided and a virus having been obtained which gave as high as 90 per cent of successes, vaccination was renewed with vigor. The province has been singularly free from smallpox since the completion of systematic vaccination.

	Cases.	Deaths.
1908.		
First trimester.....	4,080	2,282
Second trimester.....	2,136	1,350
Third trimester.....	501	326
Fourth trimester.....	218	132
1909.		
First trimester.....	267	123
Second trimester.....	254	99
Third trimester.....	108	48
Fourth trimester.....	7	3

The problem of eradicating smallpox from the Philippine Islands is one involving the thorough and repeated vaccination of all the people. Until the local sanitary officials understand that infants must be vaccinated shortly after birth, that unprotected transients must submit to the operation, and that all the people must be periodically revaccinated, smallpox will still continue to prevail.

Already notable progress along these lines is being made by the employment of permanent vaccinators.

As improved methods for the preservation of virus are discovered, as facilities for travel are increased, and the people are educated to the true value of protective inoculation, it is not too much to expect that smallpox will be reduced to a negligible minimum.